DETAILED ACTION

This action is responsive to communication filed on July 24, 2008.

Response to Amendment

The examiner has acknowledged the amendment of claims 33-34and the addition of claims 35-36.

Response to Arguments

Applicant argues on page 9 that the reference of Tuttle et al. fails to teach or suggests ending an interval prematurely if none of the tags responds. It is the examiner's position that the reference of Tuttle teaches transmitting a signal at a particular frequency and power level and a response from the tag is received communication is continued at the current power setting (step 5 of figure 1). Tuttle also teaches that when no response is received transmission at that particular power level is discontinued and the power lever is increase (step 6 in figure 1). It is the examiner's position that discontinuing the transmission at a particular power level because no response is received represents ending an interval prematurely because the normal procedure is receive a response from the tag and continue communication with the tag at the current power setting (step 5 in figure 1).

Regarding applicant argument regarding claim 35, it is the examiner's position that the reference of Schuermann teaches varying the read range of a transponder by varying the duration of the power level of the interrogation signal (col. 7 lines 1-7) and transmitting a power level at second time interval that is longer than a first interval of time in which a signal is transmitted at a

first power level represent an obvious variation because transmitting signal at different duration suggest that one duration is longer than the other.

Regarding applicant argument regarding claim 33, it is the examiner's position that the applicant reference to the situation in which more tags response to the power than are ca[able of being processed by the base station is not a claimed limitation.

Regarding applicant argument regarding reducing the power so as to reduce the number of responded tags that are in communication with the tag reader on pages 12-14, it is the examiner's position that the reference of Kenny teaches transmitting interrogation signals of different power level that is detectable in different zone and teaches the HF signal is detected in zone 1 and zone 2 (paragraph 039). The signal with the higher power level will cause the tags in zone 1 and zone 2 to respond. The higher power signal therefore has the potential of reaching more tags and generating more tag responses. Decreasing the power of the transmitted signal therefore will inherently lower the number of tags responding to the interrogation signal because the lower power signal has a smaller range compared to the higher power signal. It is therefore obvious to one of ordinary skill in the art to reduce the power if the number of responded tag is more than a particular number because it is known in the art that the power of the transmitted interrogation signal determines the range of the interrogation signal. The totality of the record must be considered when determining whether a claimed invention would have been obvious to one of ordinary skill in the art at the time the invention was made. Therefore, evidence and arguments directed to advantages not disclosed in the specification cannot be disregarded. In re Chu, 66 F.3d 292, 298-99,36 USPQ2d 1089, 1094-95 (Fed. Cir. 1995).

Regarding applicant argument regarding claims 28-32 and 34, the reference of Kenny cleary teaches range of the LF carrier signal varies with the frequency and power of the transmitted signal and teaches transmitting signal at different frequency in the same frequency band (paragraph 021).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-12 and 16-22, 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kenny et al. US Patent Application 20040036595 in view of Schuermann European Patent Application Publication 0689161 and further in view of Tuttle et al. US Patent 5613228.

Regarding claims 1-2, 12, and 36, Kenny et al. teaches sending power for a time interval to a tag at first frequency in the low frequency range (paragraph 0018) and transmitting a second signal at second frequency in the high frequency range when a response is not received from the tag after the transmission of the low frequency signal (paragraph 0033). The transmitted signal to the tag contains energy (paragraph 0019) and a first and second power (P_j and P_{j+1}) is inherently

associated with the first and second signal respectively. The LF signal is transmitted before the HF signal and is therefore transmitted at different time interval because they are not transmitted at the same time. Kenny et al. also teaches varying the range of the LF carrier signal by adjusting the power and frequency of the LF carrier signal used to identify objects in a particular zone and teaches the range of the LF signal is greater than 30kHz and less than 15MHz (paragraph 021). Kenny therefore teaches the first and second frequencies are in the same frequency band because only LF carrier signal is used to identify objects in zone 1. Kenny et al. teaches the time between sending power (P_j and P_{j+1}) is less than a time in which the tag loses its function because the transmission of the response signal from the tag provides evidenced that the function of the tag is not loss due to lack of power (paragraph 0018-0019). Kenny et al. is however silent on teaching the power is transmitted for different time duration. Schuermann in an art related identification system invention varying the read range of a transponder by varying the duration of the power level of the interrogation signal (col. 7 lines 1-7). The variation of the duration on the transmitted power level represents an increasing stair step power level as called for in claim 36. Kenny and Schuermann are also silent on teaching ending an interval prematurely if none of the tag responds. Tuttle et al. in an analogous art teaches ending a signal prematurely by terminating the transmission of a signal at a particular power level when no response is received and transmitting a signal at a higher power level (figure 1, col. 2 lines 28-54)

It would have been obvious to one of ordinary skill in the art to modify the RFID identification system of Kenny et al. as disclosed by Schuermann in view of Tuttle et al. because varying the duration of the power level of the interrogation signal provides an alternative means

of varying reading range and provides a means for limiting the power use in communication between an interrogator and RFID tags.

Regarding claim 3, Kenny et al. teaches the signals are transmitted in order for the tag to identify themselves (paragraph 0033-0034). The sending of the signal is therefore stopped after no further tag identifies themselves.

Regarding claim 4, Kenny et al. teaches transmitting signal at different range and the power of the signal varied with the range (paragraph 0021).

Regarding claims 5, 9-11, Kenny et al. teaches transmitting the interrogation signal at a first frequency and a second frequency and the range of the interrogation signal is varied with the power and/or frequency (paragraph 0021) but is not explicit on teaching reducing the power P_j when the time t_j is too short and the power is a function of time. Schuermann in an art related identification system invention varying the read range of a transponder by varying the duration of the power level of the interrogation signal (abstract).

It would have been obvious to one of ordinary skill in the art to modify the RFID identification system of Kenny et al. as disclosed by Schuermann because varying the duration of the power level of the interrogation signal provides an alternative means of varying reading range.

Regarding claims 6-8, Claims 6-8 represents an optimization of the claimed invention of changing the time the interrogation signal is broadcast at a certain frequency. When the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation, since it has been held that discovering an optimum

value of a result effective variable involves only routine skill in the art. In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

It would have been obvious to one of ordinary skill in the art to optimize the time of the transmitted interrogation signal as claimed because when the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Regarding claim 16, Kenny et al. teaches transmitting a high frequency signal to the tags when no response is received from the tag (paragraph 0033).

Regarding claim 17, Kenny et al. teaches transmitting a high frequency signal to the tags when no response is received from the tag (paragraph 0033) after first sending a LF signal at a first power (paragraph 0018). The time in which the interrogator is expected to receive the response from the tag is considered the protocol time limit.

Regarding claims 18-22, Kenny et al. teaches sending power for a time interval to a tag at first frequency in the low frequency range (paragraph 0018) and transmitting a second signal at second frequency in the high frequency range when a response is not received from the tag after the transmission of the low frequency signal (paragraph 0033). The transmitted signal to the tag contains energy (paragraph 0019) and a first and second power (P_j and P_{j+1}) is inherently associated with the first and second signal respectively. Kenny et al. teaches an antenna coupled to the base station for transmitting the signal to the tags (paragraph 0020). Kenny et al. also

teaches varying the range of the LF carrier signal by adjusting the power and frequency of the LF carrier signal used to identify objects in a particular zone and teaches the range of the LF signal is greater than 30kHz and less than 15MHz (paragraph 021). Kenny therefore teaches the first and second frequencies are in the same frequency band because only LF carrier signal is used to identify objects in zone 1. Kenny et al. is however silent on teaching the power is transmitted for different time duration. Schuermann in an art related identification system invention varying the read range of a transponder by varying the duration of the power level of the interrogation signal (col. 7 lines 1-7). Kenny and Schuermann are also silent on teaching ending an interval prematurely if none of the tag responds. Tuttle et al. in an analogous art teaches ending a signal prematurely by terminating the transmission of a signal at a particular power level when no response is received and transmitting a signal at a higher power level (figure 1, col. 2 lines 28-54)

It would have been obvious to one of ordinary skill in the art to modify the RFID identification system of Kenny et al. as disclosed by Schuermann because varying the duration of the power level of the interrogation signal provides an alternative means of varying reading range and provides a means for limiting the power use in communication between an interrogator and RFID tags.

Regarding claims 28-32, Kenny et al. teaches varying the range of the LF carrier signal by adjusting the power and frequency of the LF carrier signal used to identify objects in a particular zone and teaches the range of the LF signal is greater than 30kHz and less than 15MHz

(paragraph 021). Kenny therefore teaches the first and second frequencies are in the same frequency band because only LF carrier signal is used to identify objects in zone 1.

Regarding claim 35, Claim9 represents an optimization of the claimed invention of changing the time the interrogation signal is broadcast at a certain frequency. When the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

It would have been obvious to one of ordinary skill in the art to optimize the time of the transmitted interrogation signal as claimed because when the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kenny et al. US Patent Application 20040036595 in view of Schuermann European Patent Application Publication 0689161 in view of Tuttle et al. US Patent 5613228 and further in view of Turner European Patent Application Publication 0899677.

Regarding claims 13-14, Kenny et al. teaches transmitting an interrogation signal and the interrogator receiving a response within a time period (paragraph 0018) but is silent on teaching the response time is less than the reset and the power down time. Turner in an art related identification system teaches the tag response cycle is less than the reset and the power down time (abstract).

It would have been obvious to one of ordinary skill in the art to modify the tracking system of Kenny in view of Schuerman as disclosed by Turner because this enables the tag to transmit its response when powered by the interrogating signal.

Regarding claims 15, Kenny et al. teaches transmitting an interrogation signal and the interrogator receiving a response within a time period (paragraph 0018) but is silent on teaching the response time is less than 20 milliseconds. Turner in an art related identification system teaches the tag response cycle is less than the reset and the power down time (abstract). When the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

It would have been obvious to one of ordinary skill in the art to optimize the response time in Kenny et al. in view of Schuerman as disclosed by Turner because when the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Claims 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kenny et al. US Patent Application 20040036595 in view of Roesner et al. US Patent 5583819.

Regarding claim 33, Kenny et al. teaches sending power for a time interval to a tag at first frequency in the low frequency range (paragraph 0018) and transmitting a second signal at second frequency in the high frequency range when a response is not received from the tag after the transmission of the low frequency signal (paragraph 0033). The transmitted signal to the tag contains energy (paragraph 0019) and a first and second power (P_j and P_{j+1}) is inherently associated with the first and second signal respectively. The LF signal is transmitted before the HF signal and is therefore transmitted at different time interval because they are not transmitted at the same time. Kenny et al. also teaches varying the range of the LF carrier signal by adjusting the power and frequency of the LF carrier signal used to identify objects in a particular zone and teaches the range of the LF signal is greater than 30kHz and less than 15MHz (paragraph 021). Kenny et al. teaches varying the range of the interrogating signal by varying the power of the interrogating signal (paragraph 021) and reducing the range automatically reduce the number of tags responding to the interrogating signal. Kenny is silent on teaching the time between transmitting the different power signal is less than the time taken for the tag to loose its power. Roesner et al. in an analogous art teaches turning off the signal transmitted to the tag without causing the tag to loose power (col. 13 lines 44-49) further suggesting that the time between transmitting the different power signal is less than the time taken for the tag to loose its power.

It would have been obvious to one of ordinary skill in the art to modify the system of Kenny as disclosed by Roesner because when the time between transmitting the different power signal is less than the time taken for the tag to loose its power, the powering of the tag is ensured.

Regarding claim 34, Kenny et al. teaches varying the range of the LF carrier signal by adjusting the power and frequency of the LF carrier signal used to identify objects in a particular zone and teaches the range of the LF signal is greater than 30kHz and less than 15MHz (paragraph 021). Kenny therefore teaches the first and second frequencies are in the same frequency band because only LF carrier signal is used to identify objects in zone 1.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to VERNAL U. BROWN whose telephone number is (571)272-3060. The examiner can normally be reached on 8:30-7:00 Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Zimmerman can be reached on 571-272-3059. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Vernal U Brown/
Examiner, Art Unit 2612